

Claim Amendments

Please amend claim 1, cancel claims 17-28, and add new claims 29-30 as set forth below:

1. (currently amended) A method of reducing the size of microscratches in a microelectronic device substrate, the method comprising
providing a microelectronic device substrate comprising a surface that includes microscratches and abrasive particles leftover from a planarization process,
reducing the size of microscratches by a method comprising
removing leftover abrasive particles, and
after removing leftover abrasive particles, providing pressure and relative movement between the substrate and a polishing pad,
with application of aqueous liquid, and
without application of abrasive particles,
to provide a polished surface having an average density of microscratches having a depth up to 0.5 micron, of less than 1 such microscratch per 100 square microns.
2. (original) The method of claim 1 wherein the polished surface has an average density of microscratches having a depth in the range from 0.001 to 0.1 micron, of less than 1 such microscratch per 100 square microns.
3. (original) The method of claim 1 wherein the polished surface has an average density of microscratches having a depth in the range from 0.2 nanometers to 0.1 microns, of less than 1 such microscratch per 100 square microns.
4. (original) The method of claim 1 wherein the polished surface has an average density of microscratches having a depth in the range from 0.2 nanometers to 0.5 microns, of less than 1 such microscratch per 100 square microns.
5. (original) The method of claim 1 wherein the microscratches of the polished surface have widths in the range from 0.01 to 0.05 micron.

6. (original) The method of claim 1 wherein the microscratches of the polished surface have

a depth up to 0.1 micron,
a width up to 0.05 micron, and
a length up to 10 microns.

7. (original) The method of claim 1 comprising processing a surface of the substrate by chemical-mechanical planarization, followed by reducing the size of microscratches by a method comprising providing pressure and relative movement between the substrate and polishing pad, in the presence of aqueous liquid consisting of water.

8. (original) The method of claim 1 wherein the microelectronic device substrate is a planarized semiconductor wafer.

9. (original) The method of claim 8 wherein the semiconductor wafer is a planarized silicon wafer.

10. (original) The method of claim 1 wherein the polishing pad comprises felt, polymer impregnated felt, polymer, animal hair, or combinations thereof.

11. (original) The method of claim 1 wherein
the surface is polished using a rotating polishing pad and a rotating substrate, and
the pressure between the polishing pad and substrate is in the range of 0.2 to 3
pounds per square inch.

12. (original) The method of claim 11 wherein
the polishing pad has a diameter in the range from 18 to 28 inches, and is rotated
at a speed of from 100 to 200 revolutions per minute, and
the substrate has a diameter in the range from 4 to 8 inches, and is rotated at a
speed of from 50 to 100 revolutions per minute.

13. (original) The method of claim 1 wherein
the aqueous liquid consists of water, and
the processed surface includes no detectable microscratches having dimensions of
a depth in the range from 1 nanometer to 0.1 microns.
14. (original) The method of claim 13 wherein the water is selected from the group
consisting of a purified water, a deionized water, a distilled water, a filtered water, and mixtures
thereof.
15. (original) The method of claim 1 wherein
the microelectronic device substrate comprises a planarized silicon wafer, and
the method comprises further processing the substrate by providing a component
of a magnetoresistive memory device at a substrate surface.
16. (original) The method of claim 15 wherein the component is a component of a giant
magneto resistive device.
- 17-28 (cancelled)
29. (new) The method of claim 1, wherein the planarization process comprises chemical
mechanical processing.
30. (new) The method of claim 1, comprising removing leftover abrasive particles by a
spray rinse process.